Arcomusical

Style and Notation Guide for Composers

Gregory Beyer

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Arcomusical
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Table of Contents

ABOUT ARCOMUSICAL 3
PREFACE 4

1. STYLE GUIDE 5

1.1 Colors 5
1.2 Typography: Brand and Score Titles in Print 6
1.3 Typography: Print Scores 7
1.4 Score and Parts: General Guidelines 8
1.5 Performance and Program Notes 8
1.6 Notation Key 10

2. NOTATION GUIDE 11

2.1 Anatomy of a Berimbau 11
2.2 String Division 12
2.3 Ensemble Tuning 13
2.4 Examples 1 – Unpitched material 14
2.5 Examples 2 – Berimbau with caxixi 19
2.6 Examples 3 - The "buzz," *chiado* 20
2.7 Examples 4 – Melody 20
2.8 Examples 5 – Harmony 23
2.9 Example 6 – Glissandi 25
2.10 Example 7 – Jeté 26
2.11 Example 8 - Gourd resonance 26
2.12 Example 9 - More than one instrument per player 28
2.13 Example 10 - Berimbau with other instruments 28
2.14 Example 11 – False harmonics 29
2.15 Example 12 - Other Implements 30

ABOUT ARCOMUSICAL

Arcomusical is an organization dedicated to the advancement of the Afro-Brazilian *berimbau* and related musical bows, supported by five pillars of activity:

composition
performance
publication & recording
research
community building

The *berimbau* is one member of the "bow" family of musical instruments found all over the world. Its closest relatives are found in southern Africa, specifically in the Portuguese speaking countries of Angola (e.g. hungo and mblumbumba) and Mozambique (e.g. xitende).

Arcomusical has developed a vibrant culture for creative berimbau performance. Through transcription, composition, collaboration, and commission of new works, Arcomusical places the berimbau in diverse performance contexts. To date, Arcomusical has created over thirty new works for the berimbau.

Having created a diverse and substantial repertoire for contemporary berimbau performance, Arcomusical has become a publishing entity offering scores ranging from solos to sextets, from concerti to mixed ensembles, and from acoustic to fixed and interactive multi-media environments.

Arcomusical began in 1999 when its Director, Gregory Beyer, fell in love with the berimbau via the music of famous Brazilian percussionist, Naná Vasconcelos (1944-2016). What began as a simple transcription of a track from Vasconcelos' 1980 ECM recording, "Saudades" gradually blossomed into a 200+ page DMA thesis. Completed in 2004, the thesis discusses the berimbau in three musical contexts: Brazilian, African, and contemporary. In 2007, Beyer traveled to Recife to conduct an interview with Naná Vasconcelos that was subsequently published in Percussive Notes, the research journal of the Percussive Arts Society.

Arcomusical is now a central locus for a global community interested in research and creative uses for the berimbau in Capoeira and beyond. In Brazil, the United States, and around the globe, Arcomusical is creating important connections inside the world of Capoeira Angola and among the expanding circle of creative musicians who use the berimbau as a primary vehicle for expression.

PREFACE

The purpose of this guide is twofold. In **section 1 "STYLE GUIDE**," the guide details the essential aspects of style that Arcomusical has adopted for its publications. Arcomusical publishes every score that Projeto Arcomusical performs, assuming that both the composer and Arcomusical agree that the music is ready for publication and that Arcomusical is the best publisher for the piece. This section is written specifically for composers who have already written works for Arcomusical and are at the stage of publication stage of our collaboration process. Prior to signing a publication agreement, the composer and Arcomusical work together to see to it that the score/parts are formatted in Arcomusical "house" style. This section has been developed to define that house standard. For composers about to embark on a new work for Arcomusical, Section 1 can provide a template for style which can save a lot of time in the final stages of collaboration.

Yet, where to begin writing a new work for Arcomusical? What *IS* a *berimbau* and why would anyone want to write music for one, let alone an ensemble of berimbaus?

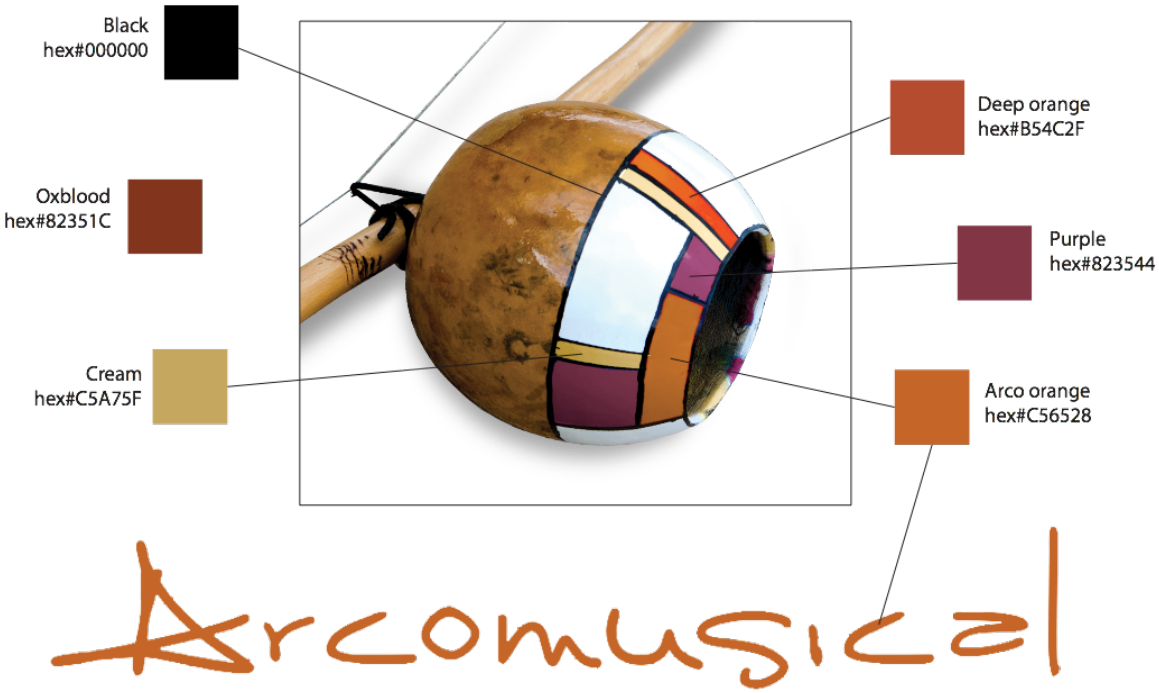
Section 2 "NOTATION GUIDE" offers a basic background about the instrument and about Arcomusical as an organization. This section takes a retrospective look at repertoire composed in the past two decades and attempts to organize and catalog a series of musical scenarios and sonic possibilities for interested composers. In so doing, we hope to shine a light on compositional tools and methods that have proven interesting and effective in writing for this unique and beautiful instrument and ensemble. While much has been covered herein, our intention is not to be exhaustive but rather to open the doors of future possibilities so that Arcomusical continues to encourage and develop a rich body of repertoire for the musical bow, one of the most ancient instruments known to man.

When doubts and questions inevitably arise, please trust that Arcomusical will always be available to dialog, workshop, and collaborate as a new piece of music comes into focus.

Examples of audio, video, and much more information can always be found at our website: **www.arcomusical.com.**

1. STYLE GUIDE

1.1. Colors

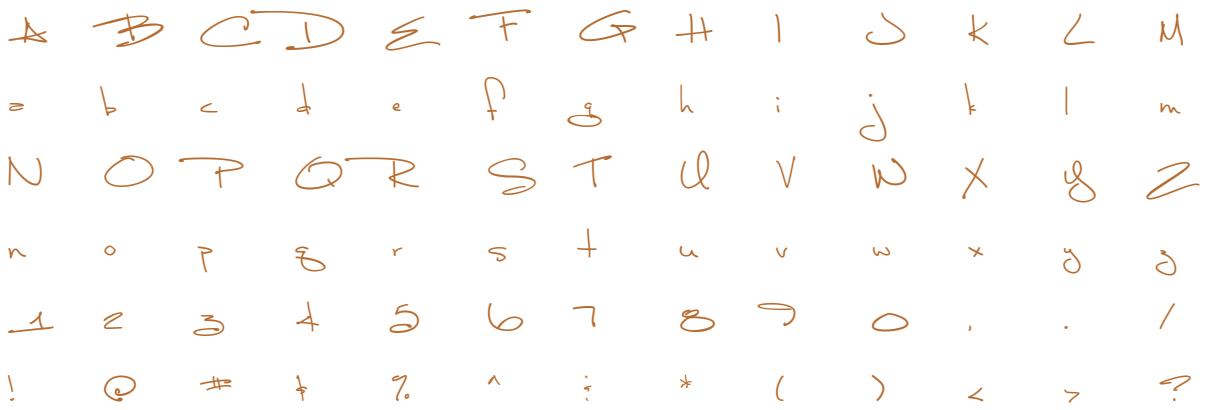


This color palette, developed by our friend Noel Childs (www.noelchilds.com), is the original set of colors that identify Arcomusical. The score covers, for example, use a different color for each size ensemble. Since the release of MeiaMeia, we have added one further color: **olive green.**

A color chart with hex information provides the complete picture:

Color	Hex Code	Uses
Black	#000000	Text
Cream	#C5A75F	Newsletter: Composition elements
Olive	#98996D	Newsletter: Performance elements
Arco Orange	#C56528	Newsletter: Publication elements
Deep Orange	#B64C2F	Newsletter: Research elements
Purple	#823545	Newsletter: Community elements

1.2. Typography: Brand and Score Titles in Print



Arcomusical has selected LUNA BAR as our font for our trademark as well as for the title for scores in print.

LUNA BAR is shareware available at dafont.com.

(Trademark logo in Luna Bar font, size 60)

1.3. Typography: Print Scores

A	B	C	D	E	F	G	H	I	J	K	L	M
a	b	c	d	e	f	g	h	i	j	k	l	m
N	O	P	Q	R	S	T	U	V	W	X	Y	Z
n	o	p	q	r	s	t	u	v	w	x	y	z
1	2	3	4	5	6	7	8	9	0	,	.	/
!	@	#	$	%	^	&	*	(	)	<	>	?

Arcomusical has selected CENTURY GOTHIC as the font for every other element in our scores. These elements include:

Element	Style (or alt. font if necessary*)	Size
Composer Name (composition year)	plain	14
Copyright	plain	10
Dynamics	Maestro	24
Dynamic Expressions	*italics*	*12*
Measure numbers	*italics*	*10*
Page numbers	plain	14
Rehearsal Letters	**CAPS, BOLD, SQUARE ENCLOSURE**	**14**
Repeat Text	**bold**	**14**
Staff Names	plain	14
Engraved Tempo Markings	Engraver Text T*	12
Text Tempo Markings	plain	14
Tempo Alterations	***bold italics***	***12***
General Text Expressions	plain	12
Technique Text Expressions	**bold**	**10-14 (as needed)**
Score/Part Indication	plain	14
Title of Work	Luna Bar	24 (or sim. as needed to fit)

1.4. Score and Parts: General Guidelines

Additional general guidelines for creating your score/part template:

Element	Suggestions and Examples
Rehearsal Letters	Where possible, endeavor to keep these over the first bar of a line, rather than in the middle of the page. This helps make the form of the work very clear for performers.
Double Bar Lines	Be conscious of the form and the length of phrase in your work. Use double bar lines copiously to demonstrate phrase construction and musical form.
Full Staff Names	Berimbau 1 5:4 (Ab3:C4)
Abbreviated Staff Names	Bau 1
Repeat numbers	**3x**
Notation key	Remove all measure numbers. Include full staff names. See p. 8

1.5. Performance and Program Notes

Please supply Arcomusical with both performance and program notes for inclusion in the score.

Performance notes include any helpful advice concerning specific sounds, phrasing, or rehearsal techniques that that you imagine will or already have proven effective for performers as they work on an interpretation. You may wish to consult your performers for input in this category.

Program notes include any background you wish potential audiences to know about this piece including: the inspiration(s) for its creation, the compositional method employed, interesting formal considerations or other musical parameters that characterize this particular work.

Performance and Program Notes Example:

Performance notes:

All vibrato with the cabaça for this piece is left to the musical discretion of the performers. It should be used tastefully throughout.

Player two begins with the shorter wire on top. All others begin in "standard" position, with the longer wire on top. Indications to flip the instrument are strategic and essential. For player five, these can come very quickly and must be choreographed and practiced in time in order to play the part accurately.

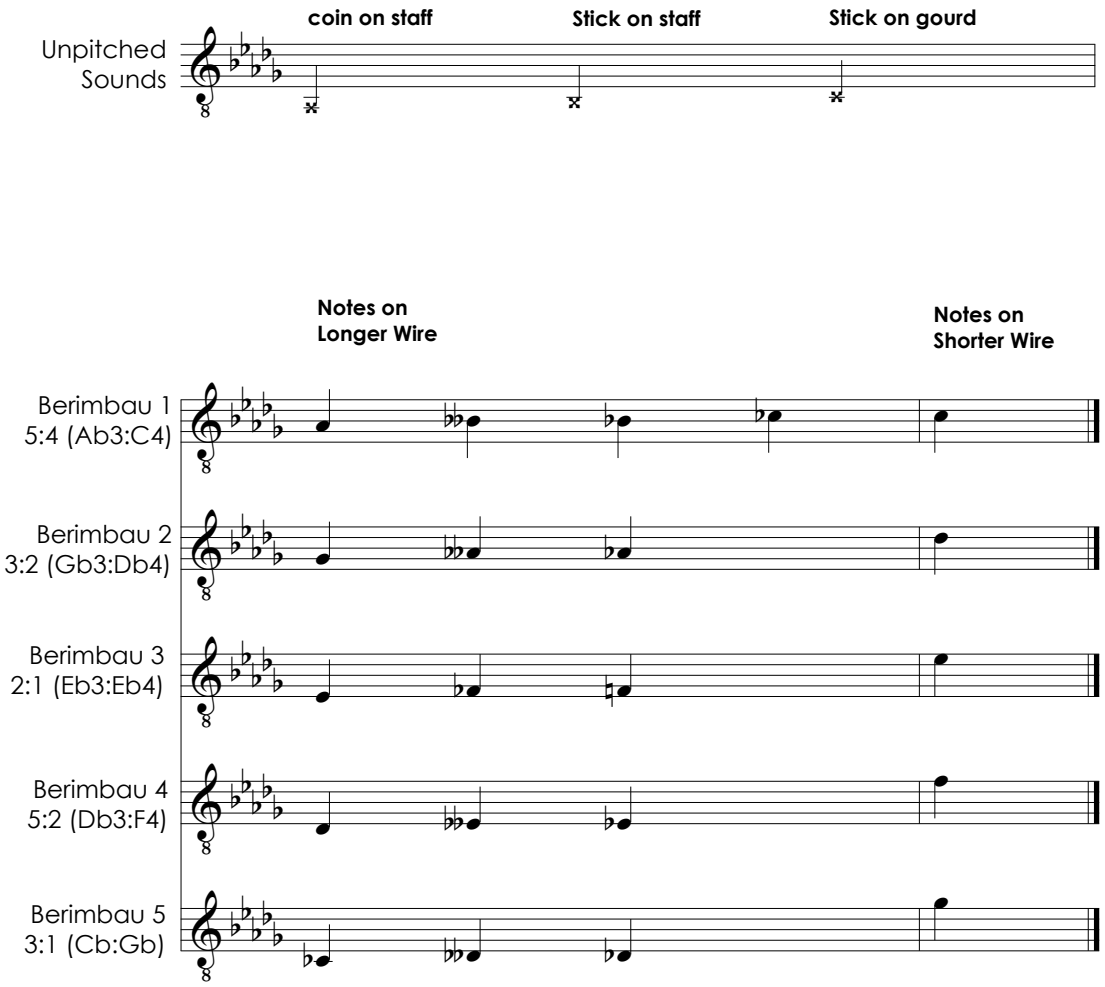
The ideas throughout this piece are inspired by Malian kora playing, specifically that of Toumani Diabate. It is highly recommended that performers become familiar with that sound world in order to best understand and realize the intentions of this sextet. Melodic material is hocketed between nearly all players throughout. The best results come from rehearsing the melodic motives separately at first, then adding the secondary accompaniment layer which is deliberately repetitive.

Some ten years ago an old friend presented me with *New Ancient Strings*, a recording by the master Malian musicians Toumani Diabate and Ballake Sissoko. This recording is an exemplar of music for kora (a harp-like instrument from Mali). When I first heard the music, I became completely entranced and imagined that someday I would be able to provide the berimbau with such music. The experience was similar to the sensation I had when I first heard Pat Metheny playing Steve Reich's *Electric Counterpoint*. I could literally hear the berimbau inside of that sound world. The central ideas throughout *Berimbau Sextet no. 1* are undeniably inspired by the sound of *New Ancient Strings*, which has been my constant musical companion for the past several months. In a manner of summing up my writing for this cycle that we now call *MeiaMeia*, toward the end of the work I make reference to *Electric Counterpoint*.

1.6. Notation Key

Due to the common use of both pitched and unpitched sounds, Arcomusical notation keys separate the two elements to clearly demarcate the uniform unpitched notation for every instrument from the specific pitches available on each instrument. This specific pitch information is useful for players because any stopped or coined note has to be tuned and marked on the wire to aid consistency of intonation. If there is a sound you want to achieve on the berimbau and are uncertain how to notate, consult the following notation guide and/or contact Arcomusical directly.

Notation Key



2. NOTATION GUIDE

2.1. Anatomy of a Berimbau

The **berimbau** is a simple instrument:

1. Staff onto which is secured a single string
2. Cabaça tied around both the staff and the wire
    1. Acts as a resonating chamber
    2. Divides the wire into two sections
3. Stick that strikes the wire
4. Coin or stone that "notes" one side of the wire to obtain pitches above the open fundamental
5. Optional caxixi basket that adds "noise" to each stroke

The **Arcomusical**, carefully designed and handcrafted by David "Snappy" White, is a more complex species of berimbau. Added features include:

1. Three-ply laminate construction of 1/4" hardwoods (maple, purpleheart, black walnut)
2. Tuning machine for precision tuning inserted into an off triangular wooden bridge to keep metal from metal
3. Offset lobe on tuning machine end to ensure wire crosses bridge properly and traverses the center of the staff

2.2. String Division

In the previous section, we noted that the cabaça serves not only to resonate the instrument's vibrations, but also to divide the wire into two sections. In *theory*, the location of the gourd can be at any point along the wire. In *practice*, some divisions are more interesting than others as they allow the instrument to resonate more fully. To discuss this, Arcomusical employs whole number ratios and adopts the Pythagorean tuning system that results.

Historically, capoeira berimbaus were shorter and thinner than they are today. Mestre Waldemar (1916-1990) who became famous for building and painting his berimbaus, cut instruments to the length of "seven palms" and placed the at "one palm." That thinking naturally yields a ratio of 6:1.

In current Brazilian capoeira practice, common string divisions range from 9:1 to 6:1, placing the gourd toward the low end of the staff. It need be said that *capoeristas* by and large do not place gourds mathematically. They find what "sounds good" via a combination of tradition and intuition. During my 2015-2016 immersion training capoeira Angola multiple times weekly with the group, Associação de Capoeira Angola Dobrada (ACAD), I came to see the 8:1 tuning as the ideal for that group's sound. Yet, frequently my teachers and my colleagues would place the gourd at 9:1 or 7:1. These are very subtle distinctions; the differences between these ratios are less than an inch in either direction. The resulting pitches, however, are quite different. (see table):

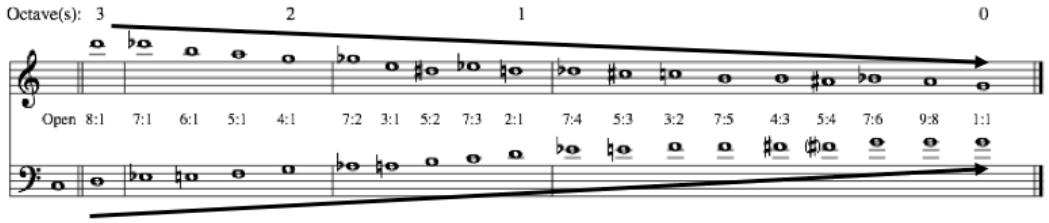
Ratio	Long Section	Short Section
6:1	G2	D5
7:1	F#2	E5
8:1	F2	F5
9:1	E2	F#5

Because the short end of the wire in capoeira is not part of any basic *toque* (pattern) and is only rarely utilized as a touch/timing stroke, its tuning is of little real concern to capoeiristas. To my thinking, however, the three octave interval that 8:1 creates yields a more attractive sound due to sympathetic resonance.

2.3. Ensemble Tuning

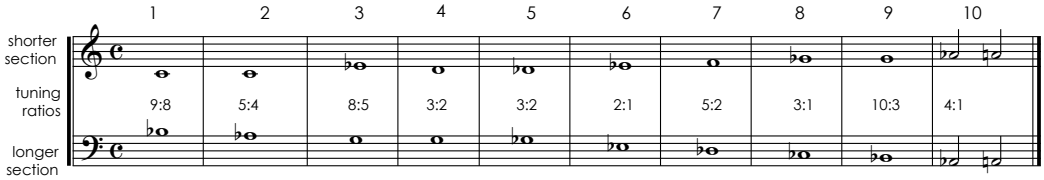
I began playing berimbau almost twenty years ago. Arcomusical as an idea, however, was born in 2004, the day I came to understand that African musical bows, specifically the Mozambican *xitende*, locate the gourd toward the middle of the instrument, yielding a totally different sound.

So inspired, I began researching the possibilities for gourd placement up and down the bow, taking stock of multiple tuning options. (see figure 1) Notice that as the gourd moves toward the center of the bow, the low notes ascend and the high notes descend. The resulting shape is a sort of wedge.



Fanning this wedge open, it became apparent that multiple instruments can play harmonically and melodically. This has gradually become the tool that has allowed the music of Arcomusical to take shape. An ensemble of instruments playing together allow a composer to assemble a collection of pitches that can span upwards of 3 octaves! Interestingly, for the Projeto Arcomusical album, *MeiaMeia,* we kept that span within only two octaves, as the following chart demonstrates:

MeiaMeia
Berimbau Tuning Chart



So, although *MeiaMeia* represents some very special work, the harmonic/ melodic possibilities inherent in this ensemble are still very much uncharted territory.

2.4. Example 1 - Unpitched material

Unpitched, percussive sounds are readily available on the berimbau. As indicated in this sample notation key, they take x-noteheads and occupy three or more adjacent lines/spaces in a range that doesn't overlap/ interfere with the pitch material of a given instrument.

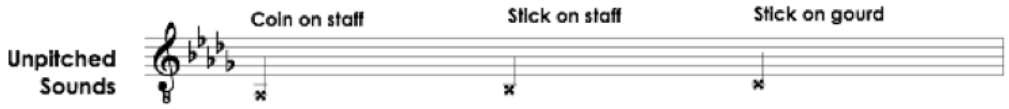


Figure 2.4.1 Coin on staff, stick on staff, stick on gourd notation

The **coin on the staff** offers a "low, resonant knocking" that activates the resonance of the entire body of the instrument. As a result, the pitch of the open wire is subtly heard in the "woodblock" tone that this technique creates.

The **stick on staff** is a woody percussive "tick" that is almost never too loud. The stick may be rubbed on the staff as well, creating a nice, smooth tremolo sound (typically indicated with notation).

The **stick on gourd** is an attention grabbing "thwack" that is the highest and loudest of the three. It can be played softly, too, but is not nearly as easy to control. The stick on staff is a better option for softer dynamics. Similarly, a tremolo on the gourd creates a rich, filtered series of harmonics when the stick is moved up and down against the gourd.

Their musical function can vary widely. Following are some notable examples from the Arcomusical repertoire:

Gregory Beyer's "Berimbau Duo no 5: "Alexis"" presents, in its middle section, quasi-melodic writing for unpitched sounds. Here the "coin on staff" sound is accented to bring out the resonance of the staff/gourd, which is surprisingly clear when knocking a large brass coin against the inside of the staff, directly in front of the gourd.

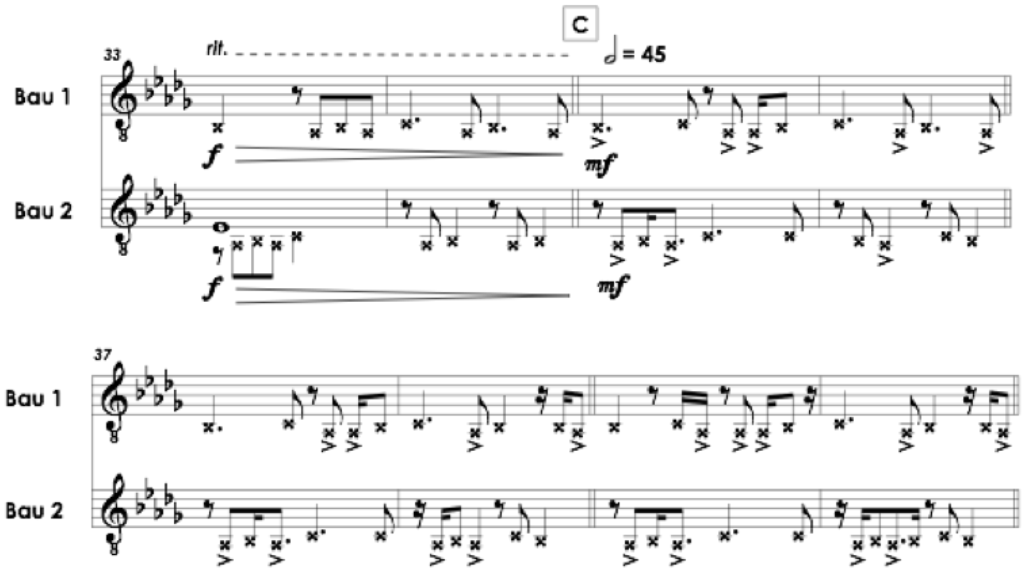


Figure 2.4.2. Gregory Beyer. "Berimbau Duo No. 5: "Alexis""

In her quartet "Queda de quatro," Alexis C. Lamb uses "stick on staff" as a constant eighth note pulse in counterpoint with the melodic material shared by the four players. The music effectively takes on a layered quality. Note that taken together players 1, 2, and 4 double the constant stream for player 3.

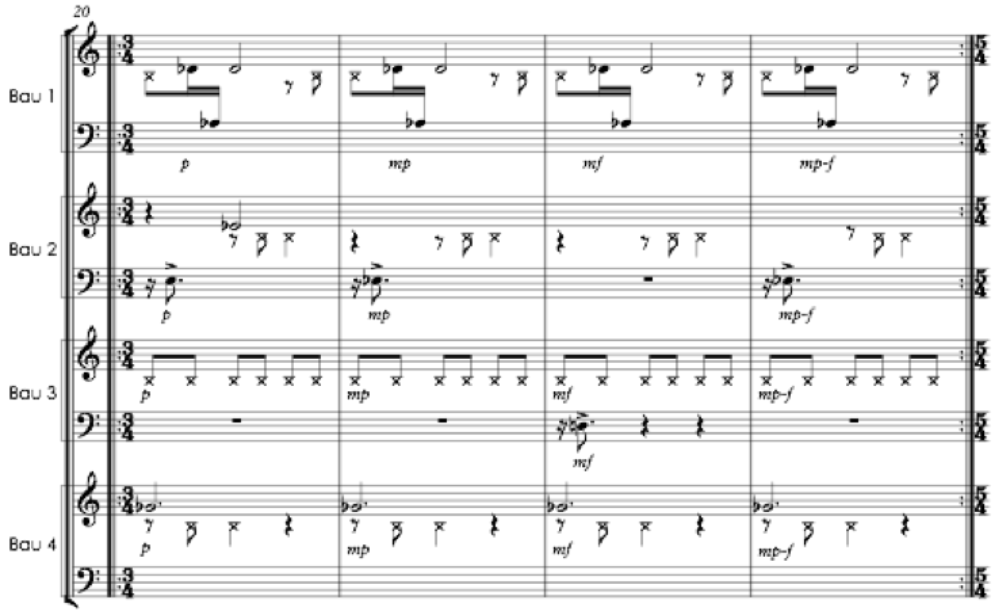


Figure 2.4.3. Alexis C. Lamb. "Queda de quatro"

Later in the same work, Alexis asks all four players to tremolo the stick against the staff and sets a "melodic" phrase using coin against the staff. This unpitched tremolo was "patented" by Naná Vasconcelos (1944-2016)

in his unprecedented exploration of the berimbau as a virtuoso instrument.

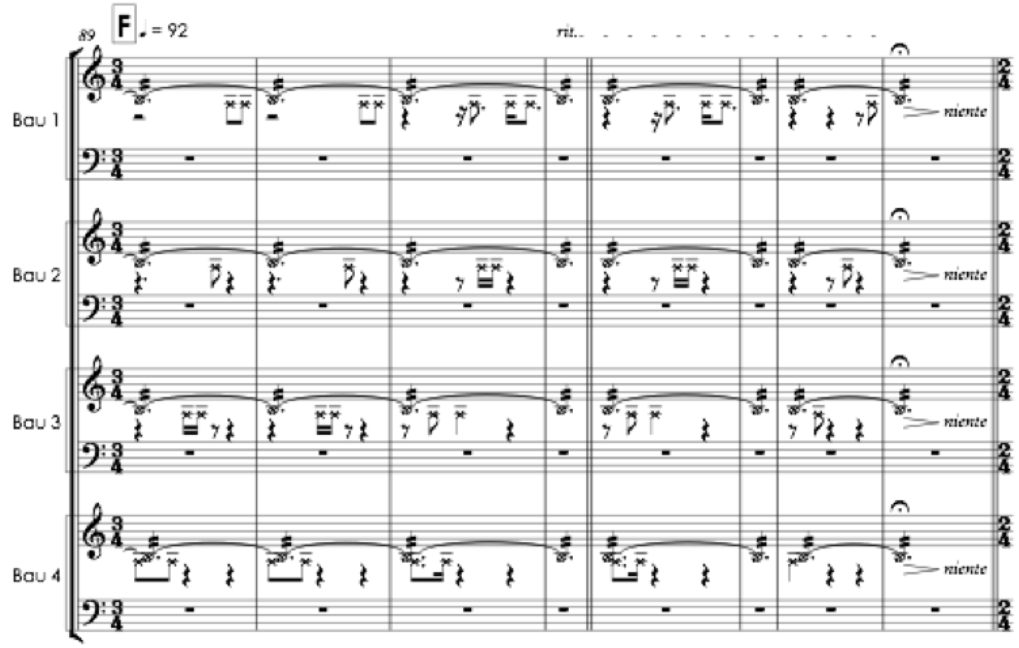


Figure 2.4.4. Alexis C. Lamb. "Queda de quatro"

In Gregory Beyer's "Berimbau Quintet no. 1: "Solkattu,"" note how the simple, powerful unison "thwack" of the stick on the gourd sets the music reeling into a completely different texture. Unpitched sounds can punctuate the texture of the ensemble much like an orchestral cymbal crash.

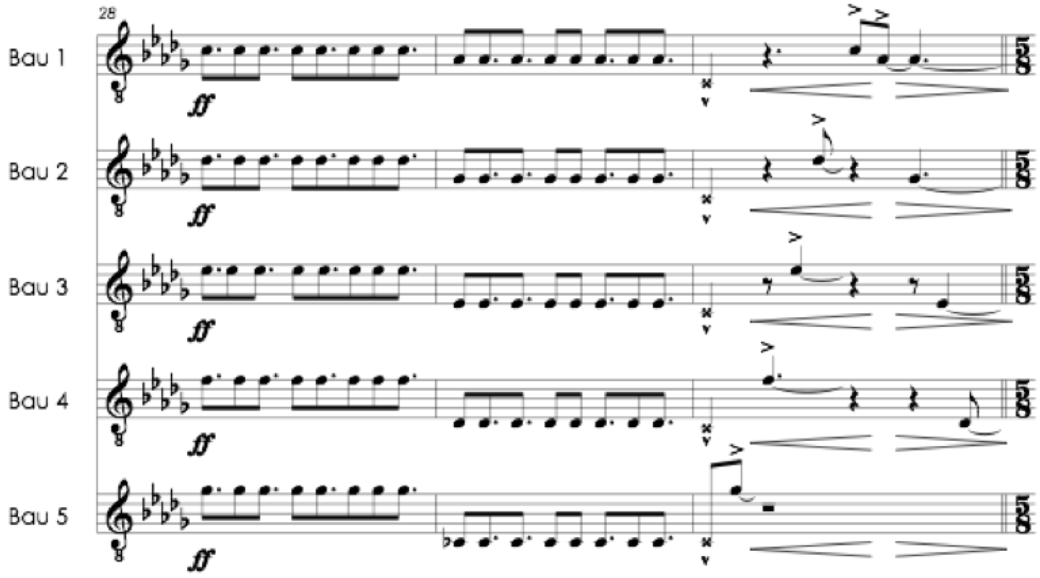


Figure 2.4.5. Gregory Beyer. "Berimbau Quintet no. 1: "Solkattu""

In the opening passage of "Repercussio," Alexandre Lunsqui chose to write unpitched material as a cloud-like mass of sound. The tremolo of stick against staff is first introduced as player overlaps player in a cascade-like crescendo. Before that cloud completely even begins to subside, Lunsqui introduces *another* cloud of unpitched material, this time a tremolo between the staff and the wire, another technique made famous by Naná Vasconcelos. The texture of the score itself serves to aid the imagination of the sound that results.

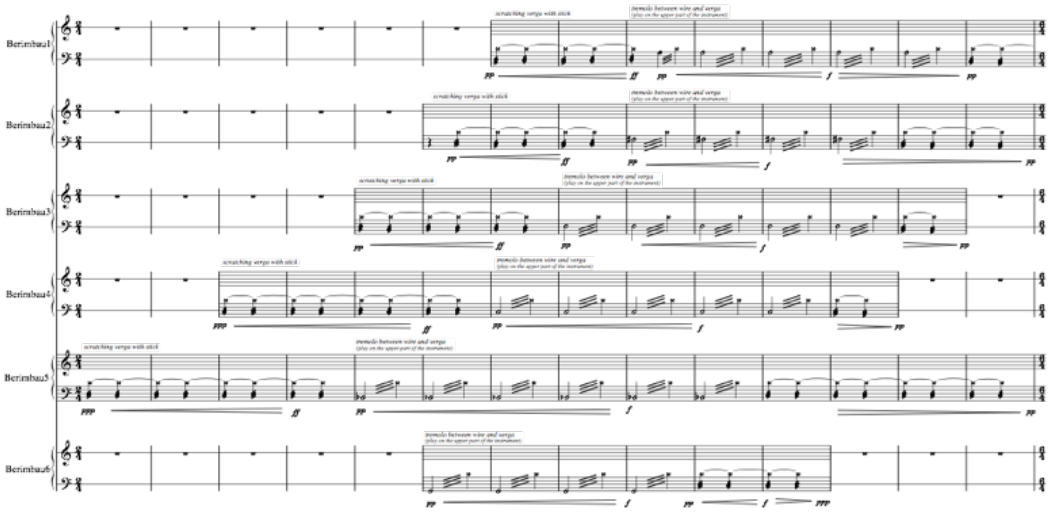


Figure 2.4.6. Alexandre Lunsqui. "Repercussio"

In Mateus Oliveira's "Caminhos," berimbau 1 uses a stick to scape vertically along the staff, producing a shifting sound, similarly to a slide whistle.

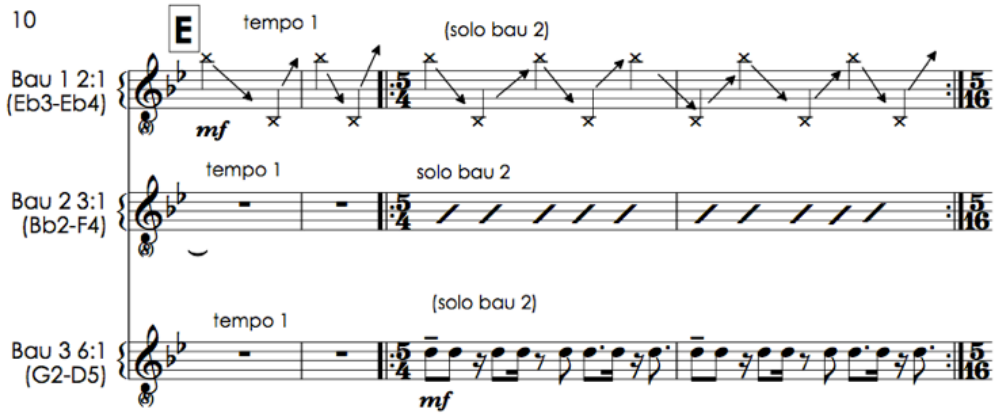


Figure 2.4.7. Mateus Oliveira. "Caminhos"

Later on in "Caminhos," players 1 and 2 strike the staff in an up/down movement to create a constant change in pitch.

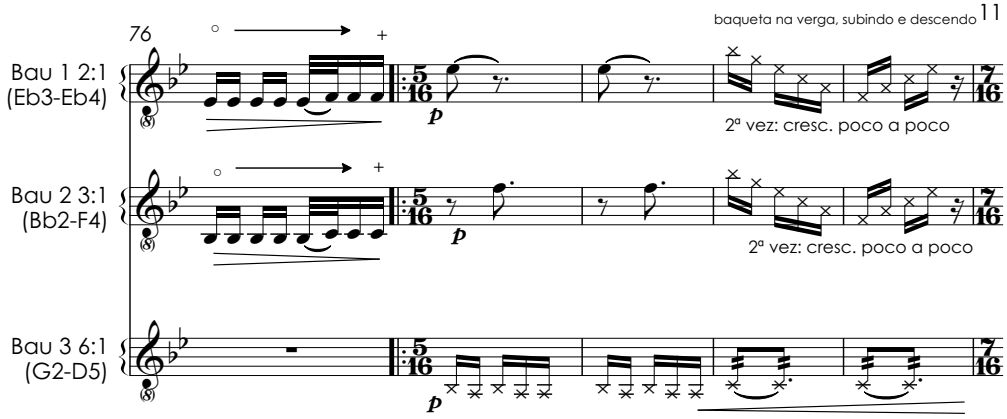


Figure 2.4.8. Mateus Oliveira. "Caminhos"

2.5. Example 2 – Berimbau with caxixi

In the traditional context of *capoeira*, the berimbau is never played without caxixi accompaniment. Similarly to other instruments indigenous to Africa, a rattle or buzzing sound is said to represent spirits of their ancestors. However, in the *MeiaMeia* compositions, Lamb's *um só* is the only piece performed with caxixi.

When performing with caxixi, you suddenly have two voices. You have the option of performing each individually or both together. In the following passage, Lamb utilizes the caxixi as a solo percussive instrument before bringing the berimbau back into the texture.

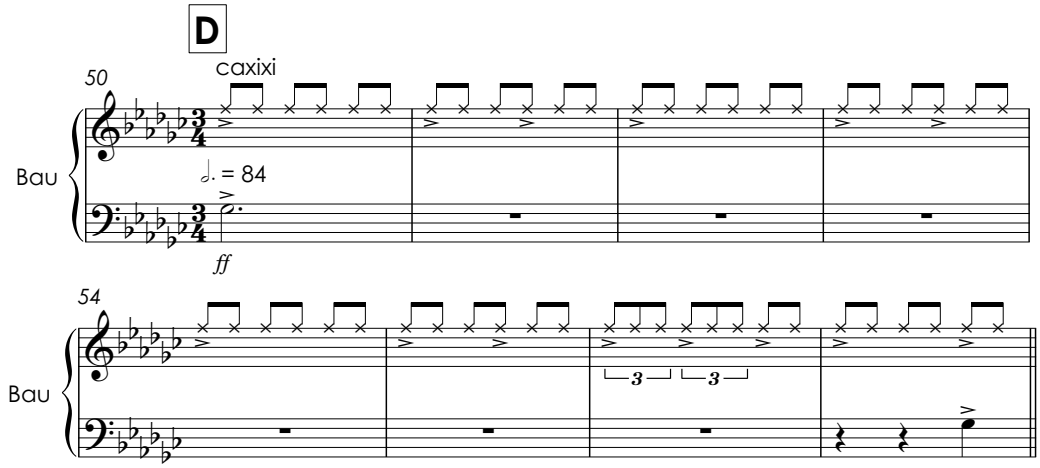


Figure 2.5.1. Alexis C. Lamb. "um só"

Later in the same piece, Lamb uses both pitched and unpitched material to create multiple textural layers alongside the caxixi.

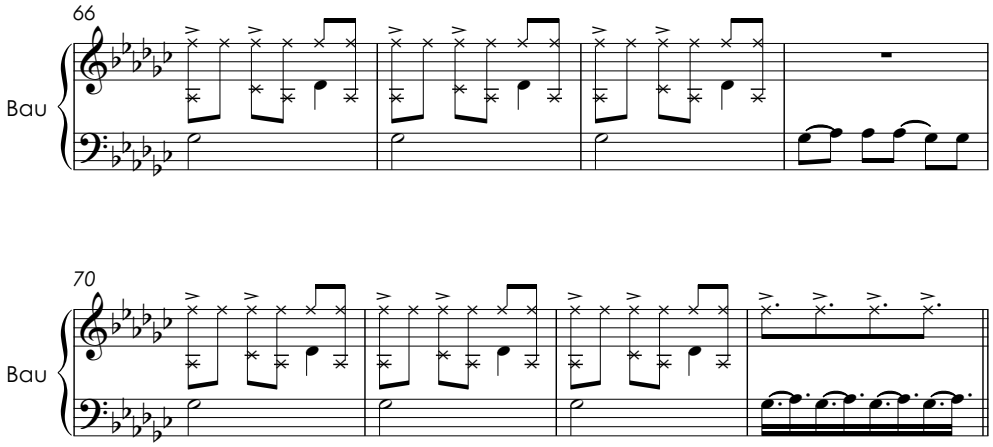


Figure 2.5.2. Alexis C. Lamb. "um só"

2.6. Example 3 – The "buzz," or "*chiado*"

The *chiado* is another traditional sound used in *capoeira*. In the following passage of "Caminhos," Matthias Oliveira passes the *chiado* (notated with the x-heads on F in Bau 1 and C in Bau 2) around the ensemble to maintain a constant 16-note pulse.

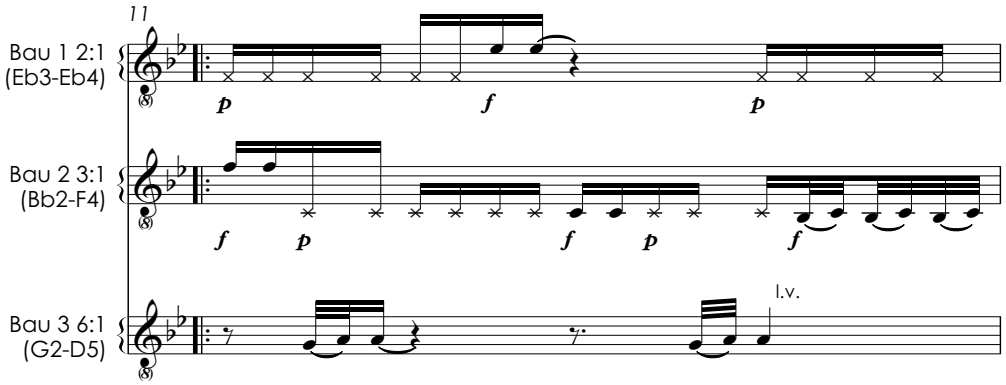


Figure 2.6.1. Mateus Oliveira. "Caminhos"

2.7. Example 4 – Melody

Melodies can be created in a variety ways using the berimbau. Depending on the tuning ratio, some instruments will have more available pitches than others and can therefore create a more involved melody. For example, both of the solos in the *MeiaMeia* repertoire are tuned to close ratios of 9:8 and 3:2 in order to achieve a greater range of pitches.

Most melodies created in ensemble settings are passed around from instrument to instrument in a hocketed fashion. Examples of hocketed melodies in different-sized ensembles are shown below.

In "Berimbau Duo No. 5," Beyer creates an ostinato pattern in both instruments that acts as a skeleton for the melody. This melody is established using additive processes over multiple measures.

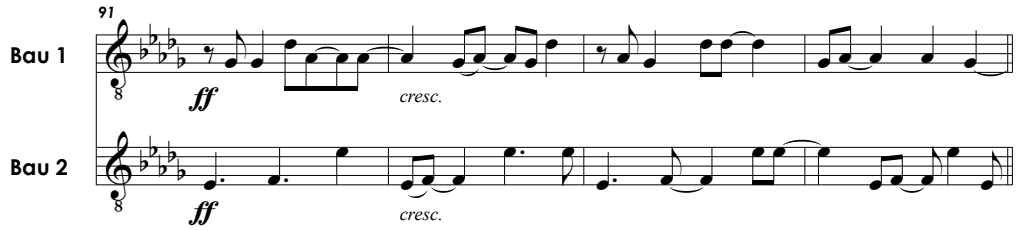


Figure 2.7.1. Gregory Beyer. "Berimbau Duo No. 5, "Alexis""

In “Berimbau Sextet no. 1: “Kora,”” Beyer shares a single line melody between all members of the ensemble. In this manner, a berimbau sextet functions not unlike a handbell choir.

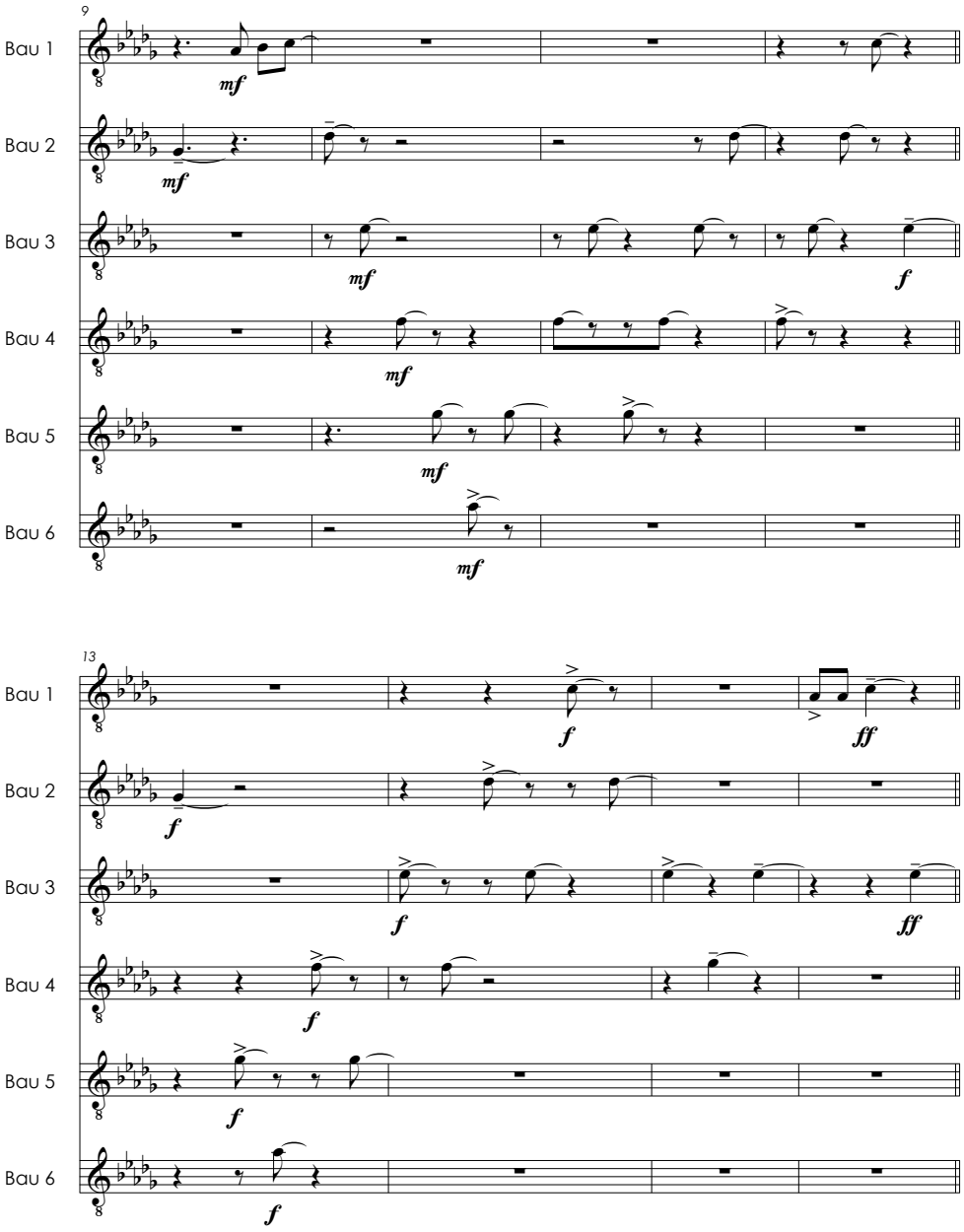


Figure 2.7.3. Gregory Beyer. “Berimbau Sextet No. 1, “Kora””

When the berimbau is flipped 180 degrees, the shorter length of the wire produces an entirely different set of pitch possibilities in a much higher range. Later on in “Kora,” Beyer flips many of the instruments to set a

rapid-fire melody over a bass ostinato of open wire pitches which are also spread across the instruments. In this passage, counterpoint is demonstrated as no less than three "voices" are shared between multiple instruments simultaneously.

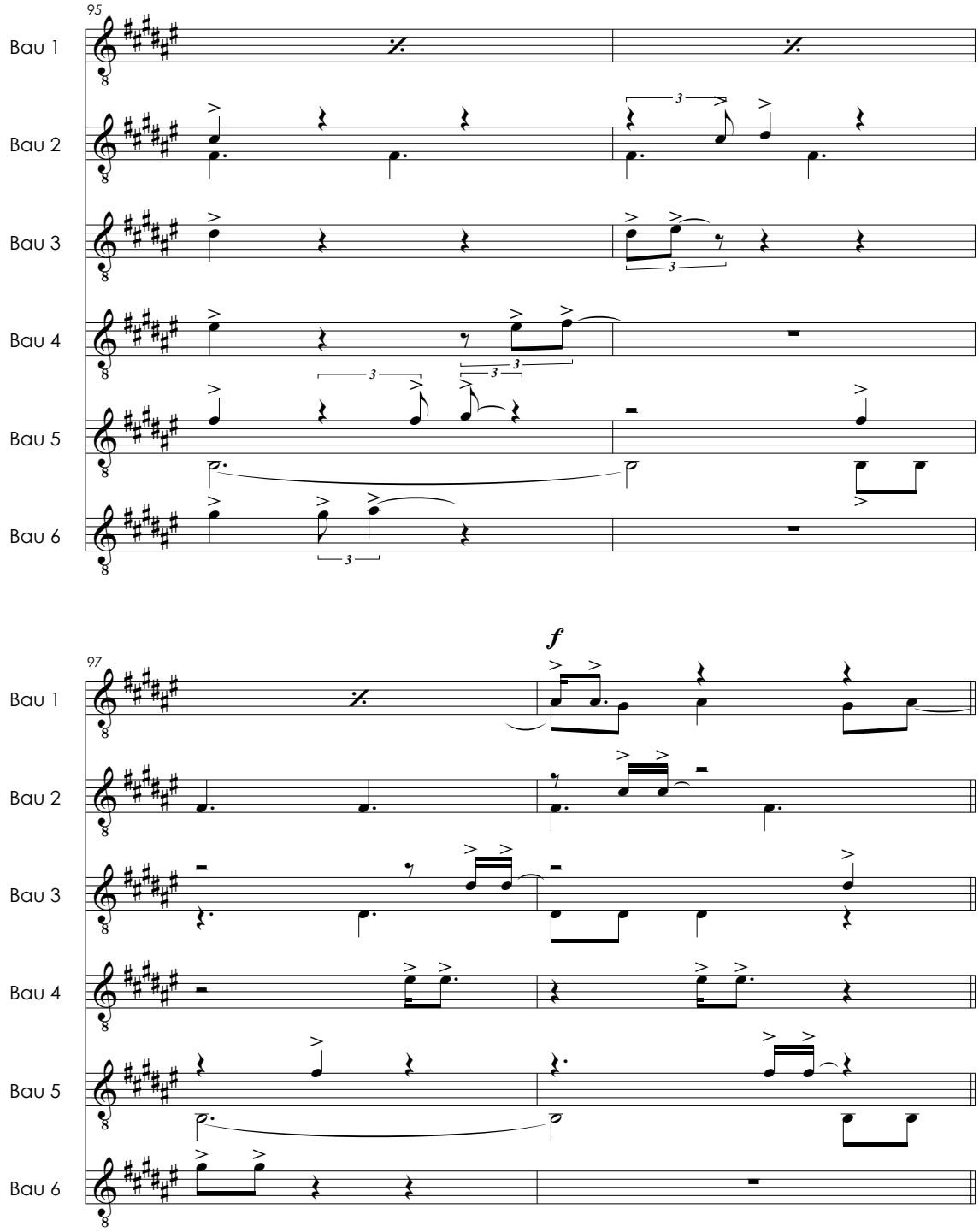


Figure 2.7.4. Gregory Beyer. "Berimbau Sextet No. 1, "Kora""

2.8. Example 5 – Harmony

When multiple instruments of various tuning ratios and pitches perform together, the ensemble takes on the role of a meta-harp or guitar. Harmony can be achieved either when the instruments strike pitches at the same time, or when chords are created via arpeggios or other patterns and the resulting resonance of the berimbau bleeds into the other sounds.

In *Berimbau Trio No. 1*, Beyer creates a 12-bar harmonic progression that is arpeggiated between the three instruments. The resulting effect is a constantly flowing cloud of harmony that shifts based on what note of the arpeggio is struck. Here are the first four bars of that progression.

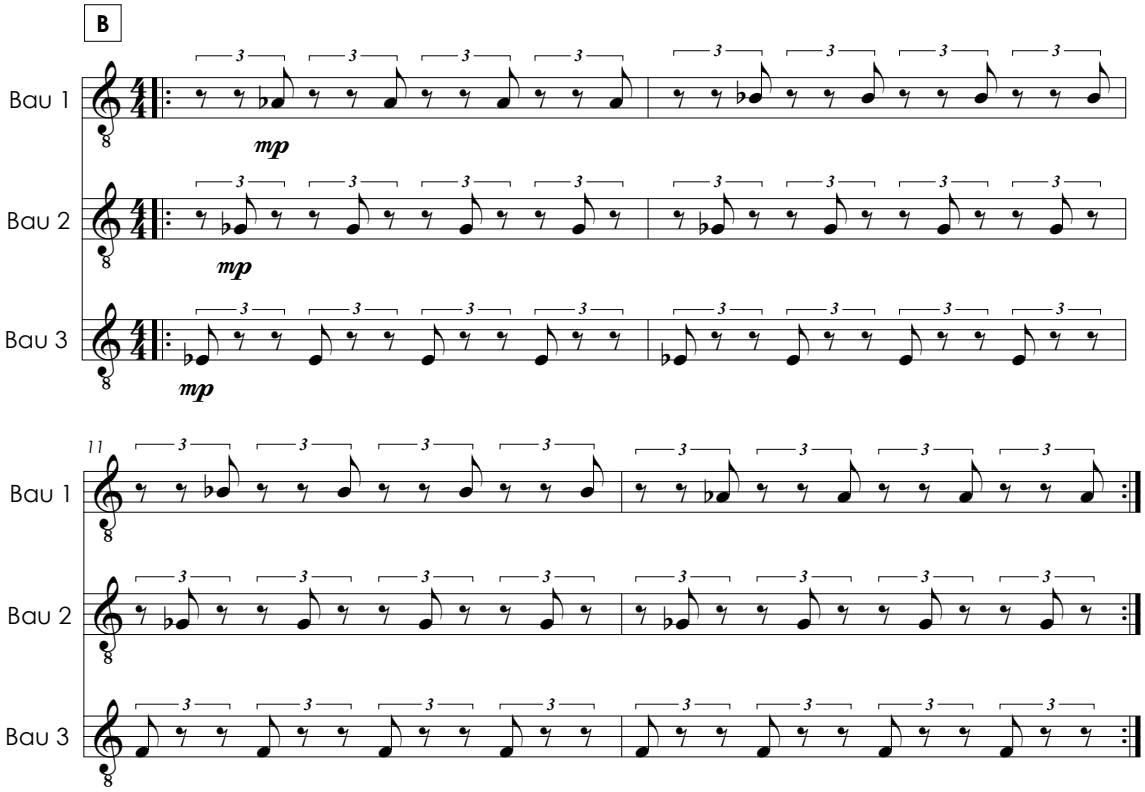


Figure 2.8.1. Gregory Beyer. "Berimbau Trio No. 1, "Harmonia""

In her quintet, Lamb sets the tone of a 5/8 waltz by establishing a simple chord progression where the instruments strike their pitches in the same rhythmic pattern but with different groupings of instruments.

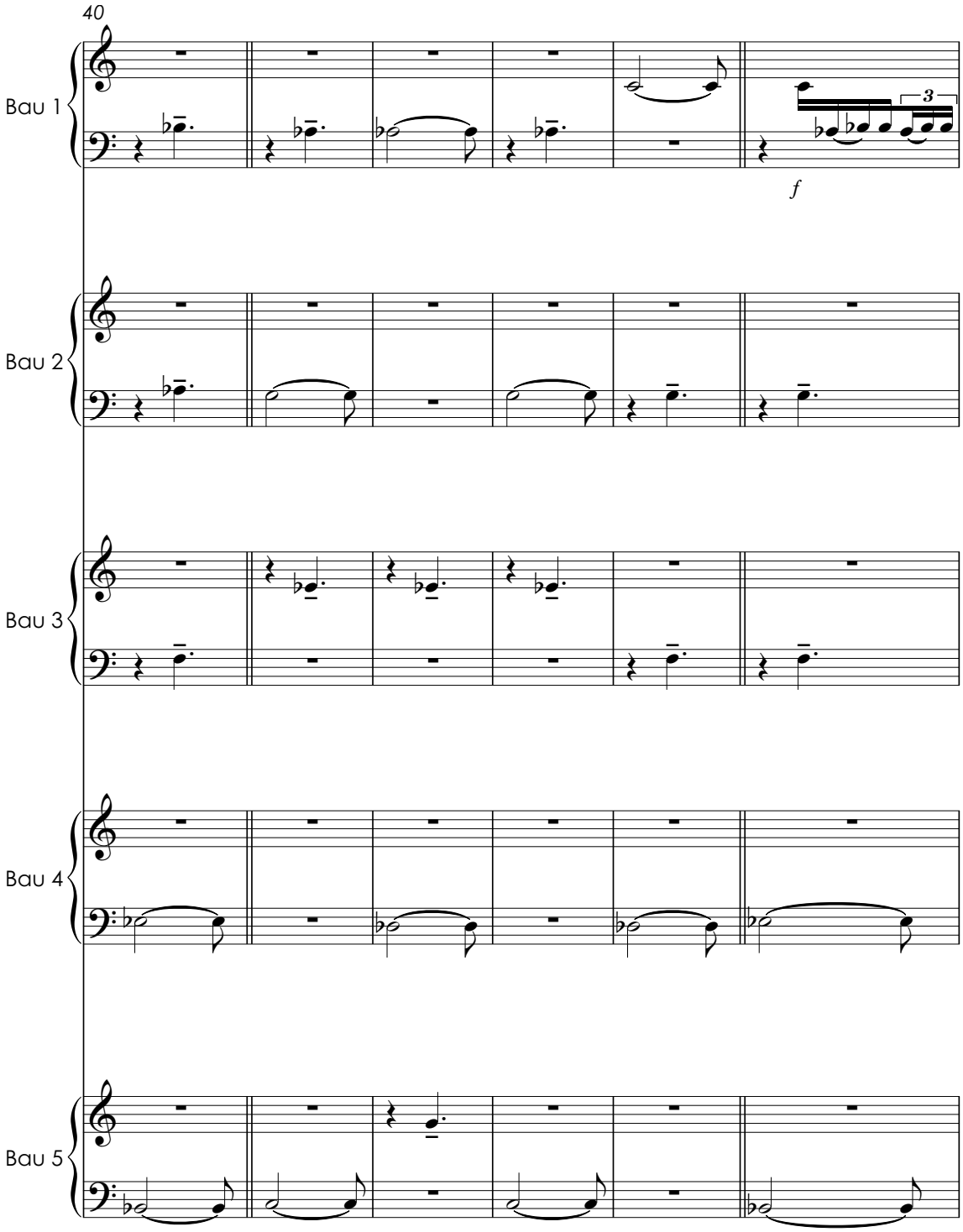


Figure 2.8.2. Alexis C. Lamb. "Mudança de onda"

2.9. Example 6 – Glissandi

Pitches can be gradually reached by slowly moving the coin up or down against the wire while playing. In the following example, Alexis C. Lamb creates a smearing texture by composing multiple glissandi overlapping one another between instruments.

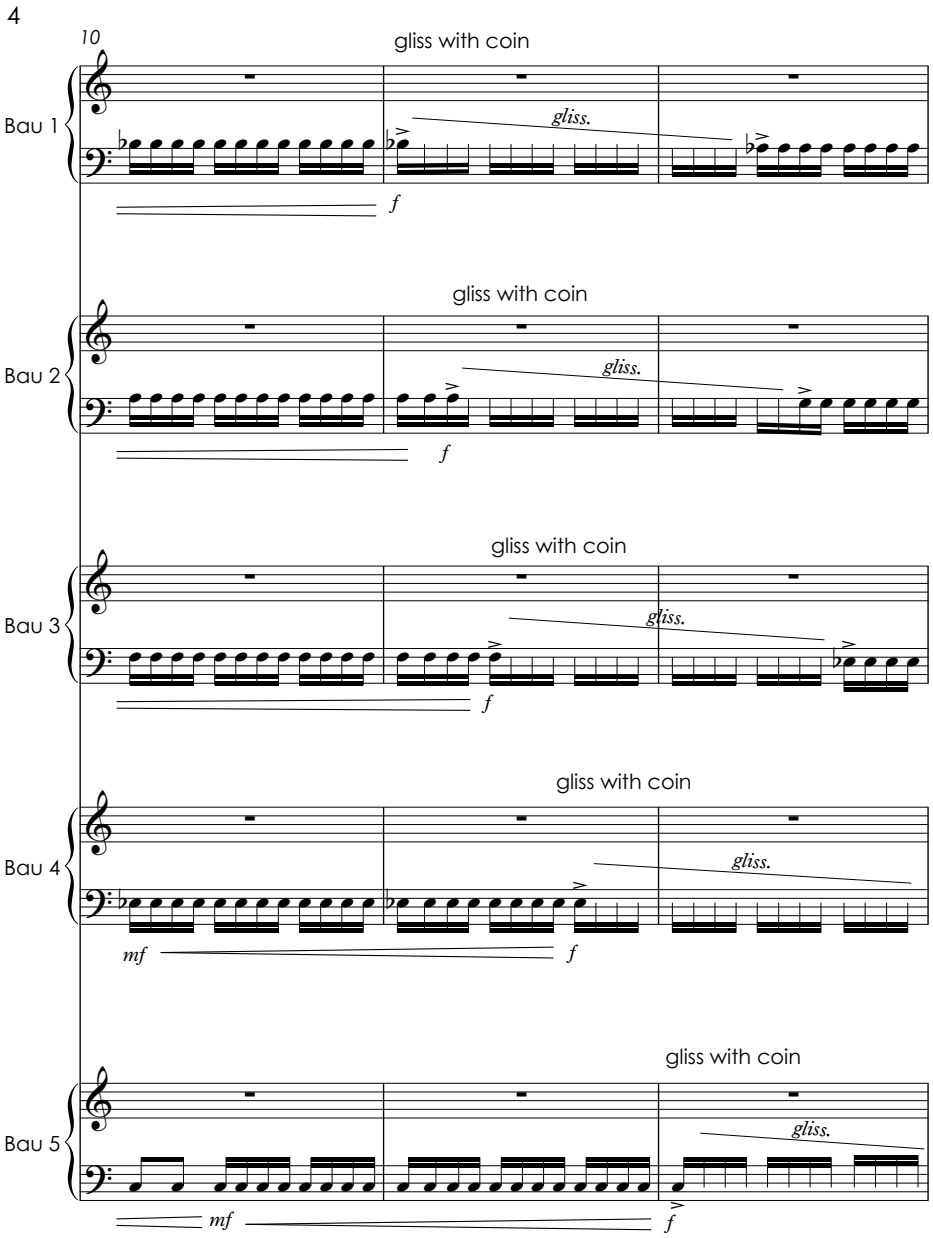


Figure 2.9.1. Alexis C. Lamb. "Mudança de onda"

2.10. Example 7 – *Jeté*

A *jeté* can be achieved by striking the wire while holding the stick loosely and letting it rebound off of the wire. A *jeté* is typically notated with feathered beaming to show the rebound effect.

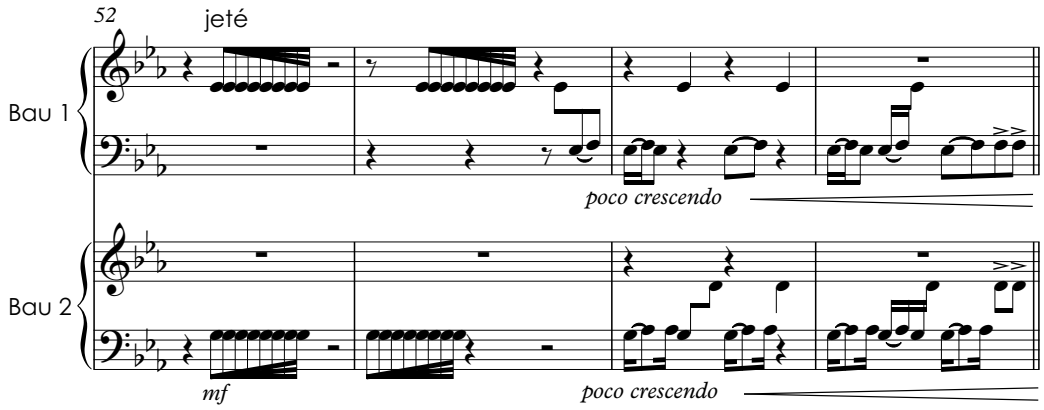


Figure 2.10.1. Alexis C. Lamb. "Descobertas por pau e pedra"

2.11. Example 8 – Gourd resonance

In almost every *MeiaMeia* composition, the performance notes state, "All vibrato with the cabaça for this piece is left to the musical discretion of the performer. It should be used tastefully throughout." However, sometimes composers write specific rhythms to control the speed of the cabaça vibrato.

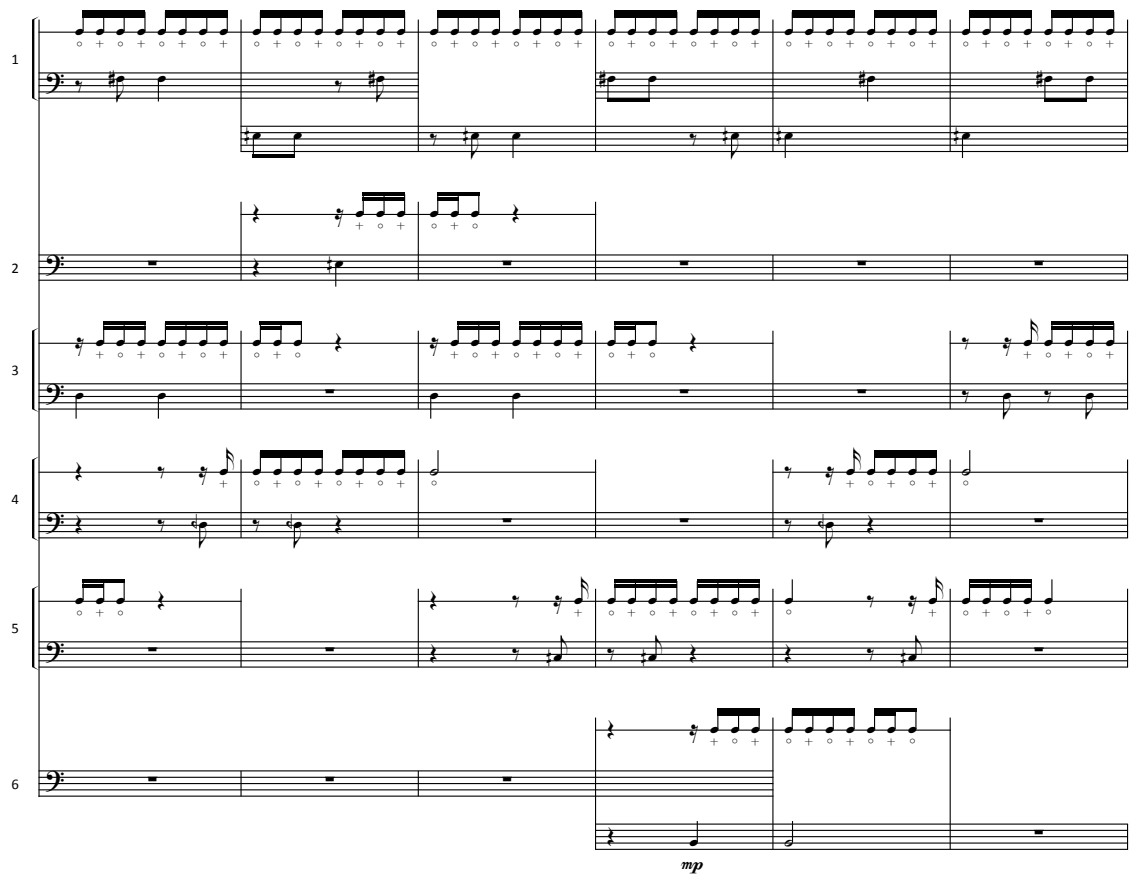


Figure 2.11.1. David Gordon. "Jigsaw Zither"

Gourd resonance can also be used to emphasize dynamics. The closer the gourd is to the stomach, the more muted the sound.

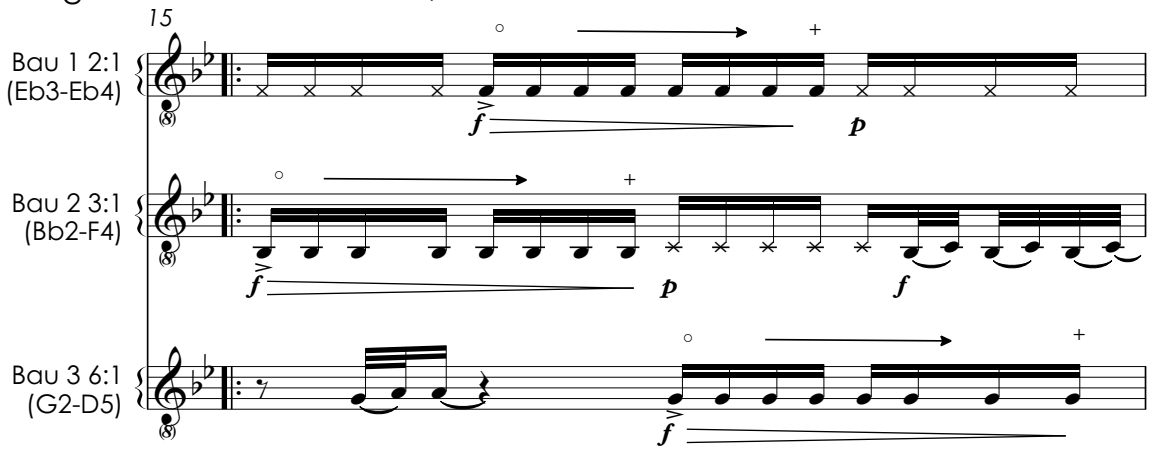


Figure 2.11.2. Mateus Oliveira. "Caminhos"

2.12. Example 9 – More than one instrument per player

As long as there is ample time to make a switch in the music, multiple instruments can be assigned to each player. David M. Gordon, in his "Jigsaw Zither," employed nine instruments between six players!

2.13. Example 10 – Berimbau performed with other instruments

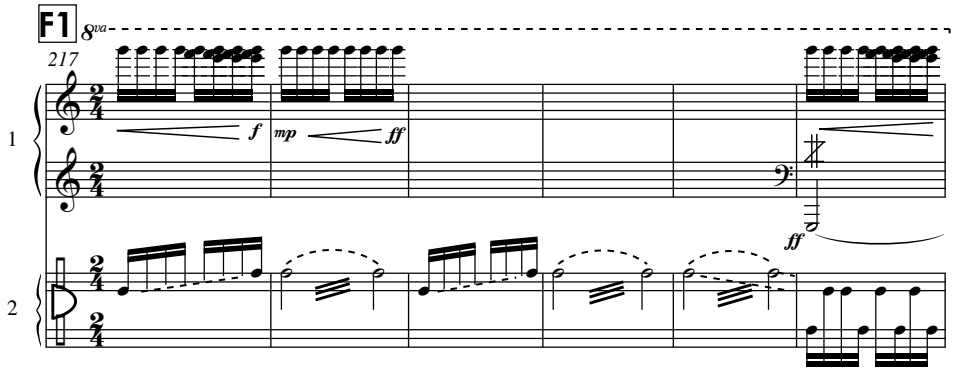


Figure 2.13.1. Alexandre Lunsqui. "Glaes"

2.14. Example 11 – False harmonics

Harmonics are, for the most part, uncharted territory in the current berimbau repertoire. However, they can be achieved by using your thumb and finger to pluck the wire at ratio points on the wire, similarly to other stringed instruments.

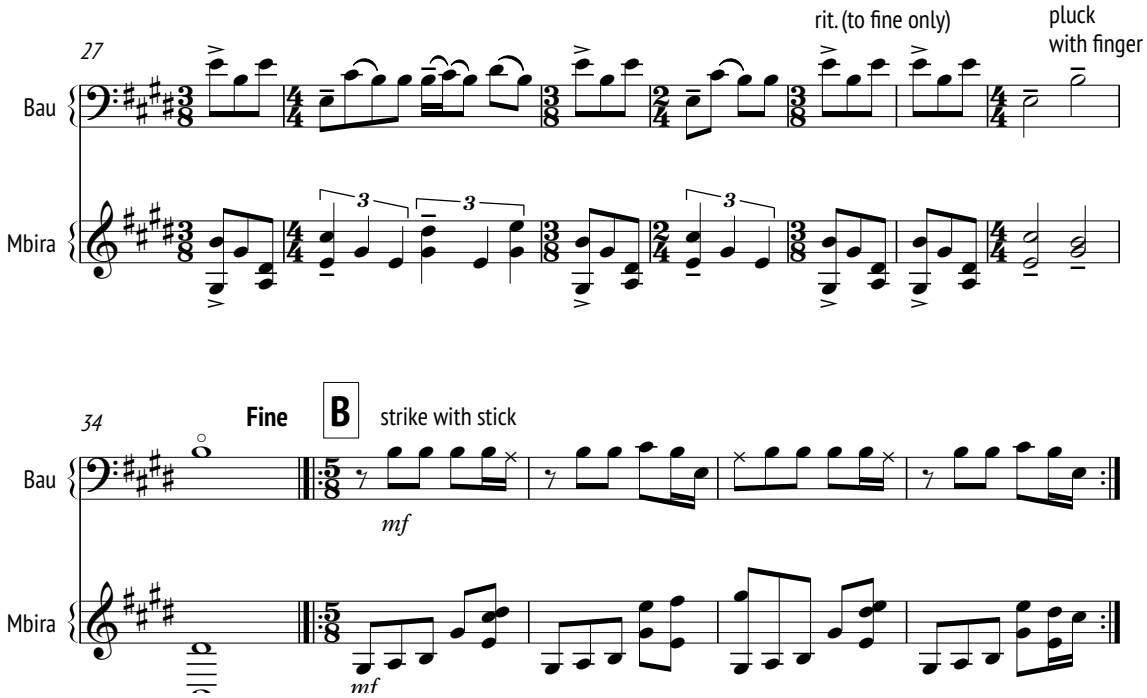


Figure 2.14.1. Alexis C. Lamb. "Aqui no meu jardim"

2.15. Example 12 – Other implements

Many other implements have been used to produce sound other than the traditional striking of the wire with a stick. A few examples of these are indicated below:

Finger pluck

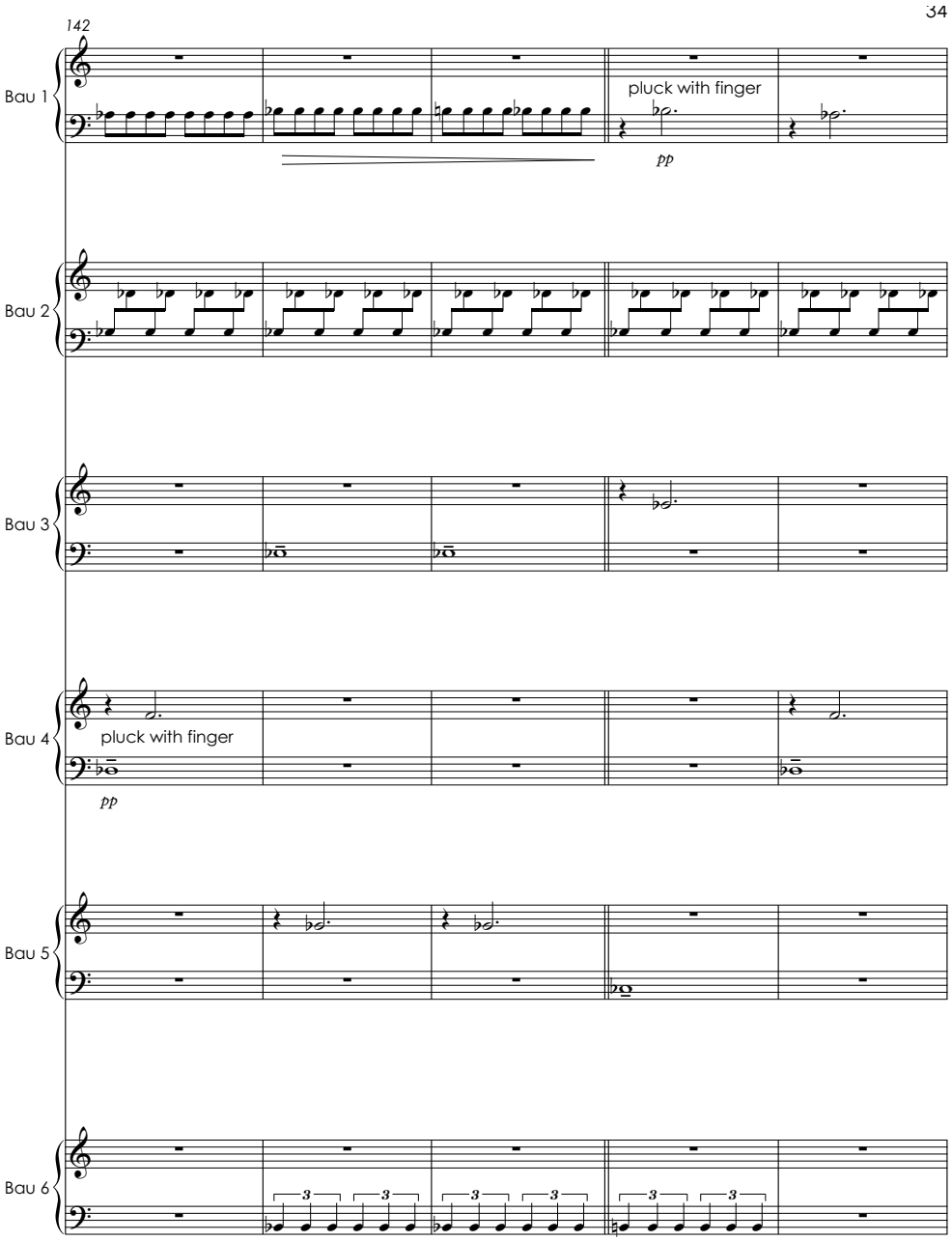


Figure 2.15.1. Alexis C. Lamb. "Apenas seja"

Soft stick. *Arcomusical* uses a moleskin-wrapped stick. (This effect is something akin to a hammered dulcimer stick or a timpani mallet.)

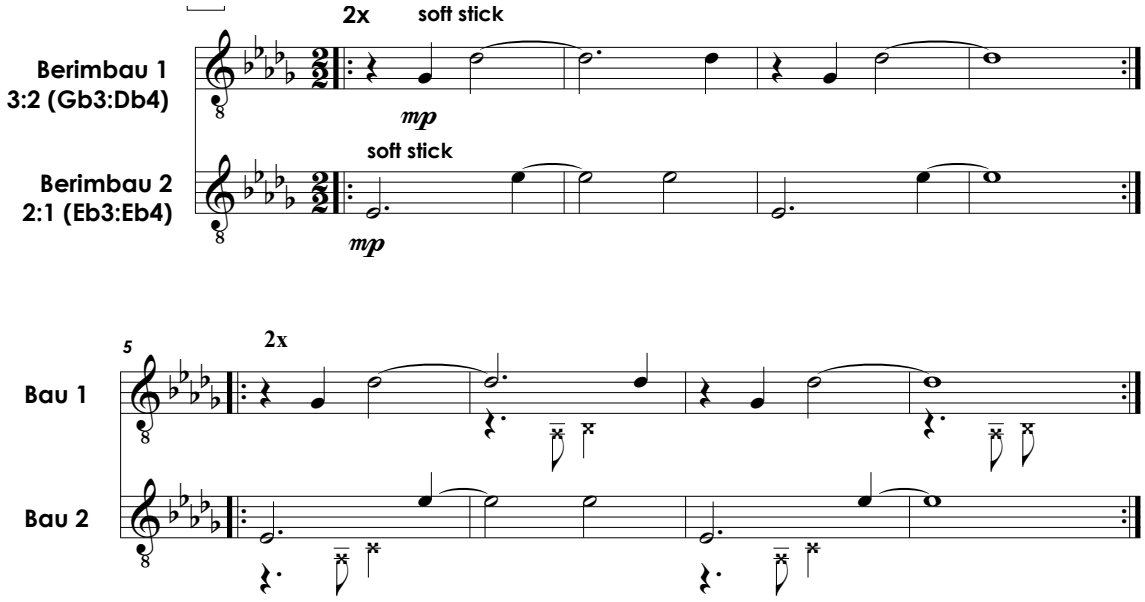


Figure 2.15.2. Gregory Beyer. "Berimbau Duo No. 5: "Alexis""

Drinking glass glissandi

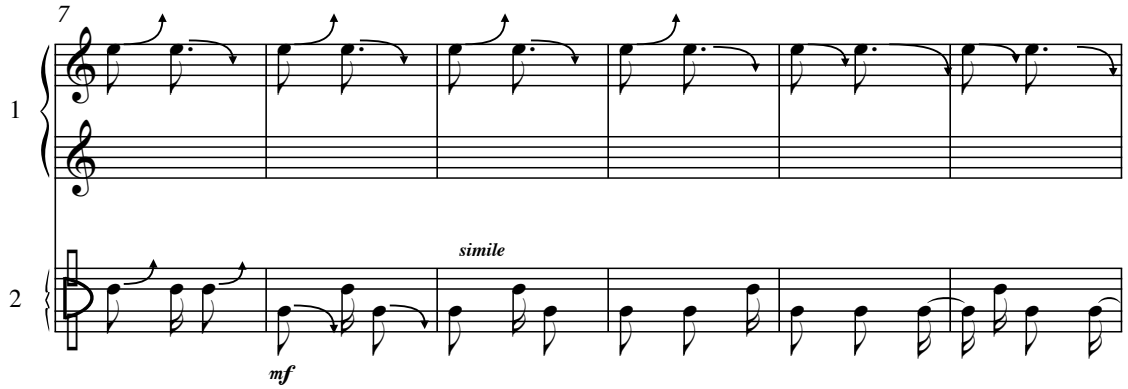


Figure 2.15.3. Alexandre Lunsqui. "Glaes"

Threaded rod scraped across berimbau wire

(Caution: do not use the threaded rod to scrape the side of the gourd or staff. It will cause damage to both.)

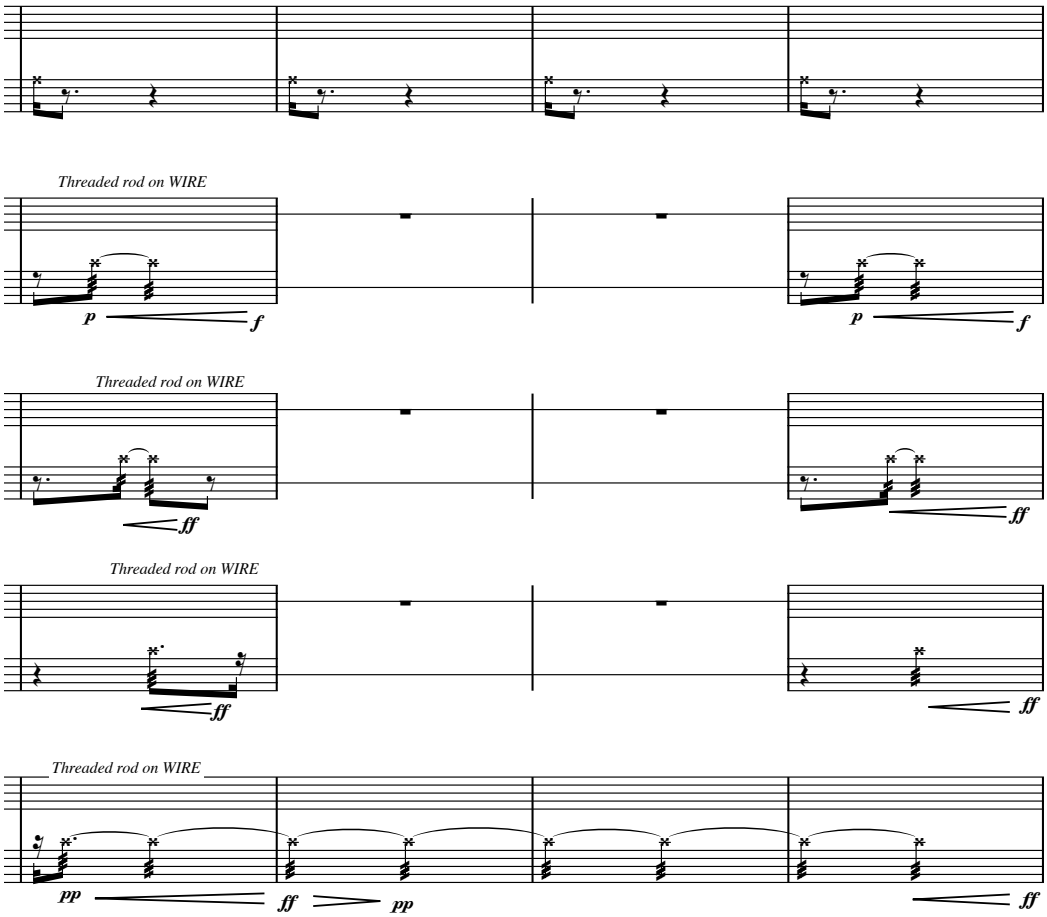
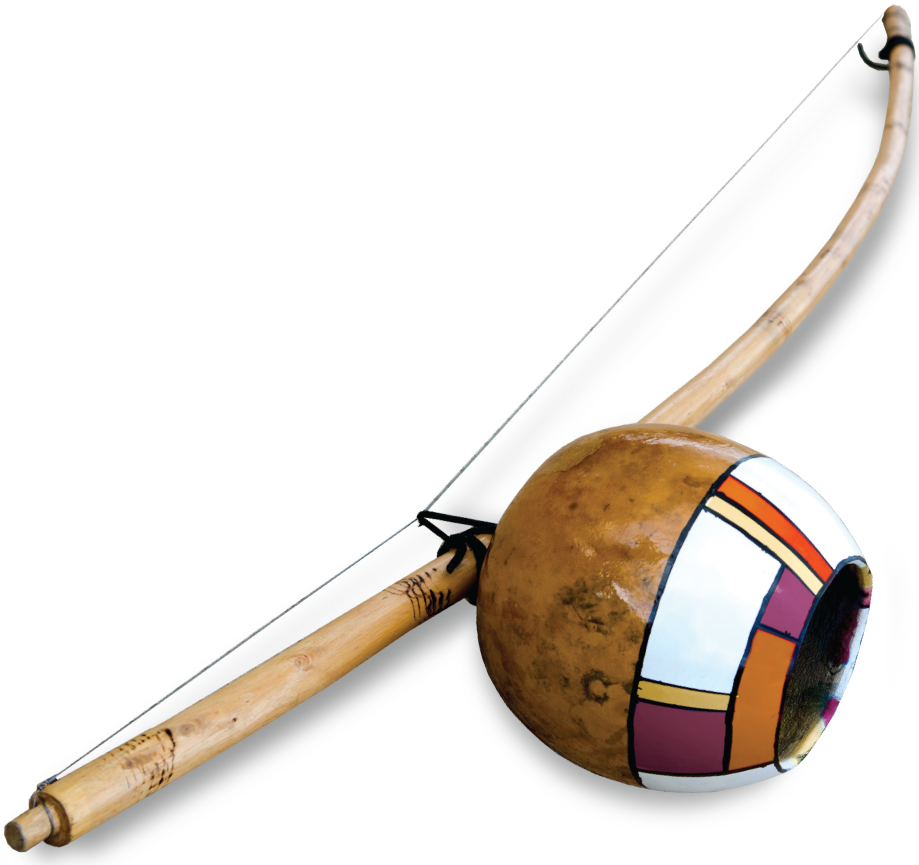


Figure 2.15.4. Alexandre Lunsqui. "Repercussio"

Arcomusical

arcomusical.com